

Listing of Claims:

1. (Currently Amended) A method of detecting a frequency correction burst signal in a received signal comprising the steps of:

    delaying the received signal by a period that is an integer multiple of one cycle of rotation of the frequency correction burst signal to produce a reference signal; and

    correlating the received signal with a conjugate version of the reference signal to produce a correlation result that is insensitive to a frequency offset in a nominal carrier frequency of the received signal, the correlation result being indicative of a location of the frequency correction burst signal within the received signal, wherein the correlating step uses only real components of the [received signal] correlation result for improved computational efficiency where the frequency offset is expected to be within an acceptable range around nominal.

2. (Original) The method as recited in claim 1 further comprising the step of estimating the frequency offset as a function of the correlation result.

3. (Canceled)

4. (Previously Presented) The method as recited in claim 1 further comprising the steps of:

    determining quadrature components of the received signal at the location of the frequency correction burst signal to determine in conjunction with the real components a phase angle; and  
    estimating the frequency offset as a function of the phase angle.

5. (Original) The method as recited in claim 1 further comprising the step of down-converting the received signal to a baseband complex discrete-time sample signal for input to the delaying and correlating steps as the received signal.

6. (Original) The method as recited in claim 5 wherein the down-converting step comprises the steps of:

mixing the received signal with a first local oscillator signal to produce an intermediate frequency signal;

digitizing the intermediate frequency signal to produce a sampled intermediate frequency signal; and

mixing the sampled intermediate frequency signal with a second complex local oscillator signal to produce a sample signal with real and quadrature components as the baseband complex discrete-time sample signal.